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gave wholly negative results, not a single seed developing. This race of *gigas* came from an independent source, having originated, apparently by a mutation, in the Palermo Botanical Garden.[2] Theoretically, it might have been anticipated that the eggs of these plants, having already the diploid number of chromosomes (14) would be most likely to show a tendency to apogamy, but so far as the evidence goes this does not appear to be the case. The unbalanced chromosome number (15) in *lata* might on the other hand perhaps be expected to predispose megaspores or egg cells of *lata* having this number of chromosomes (assuming that such occur) instead of the reduced number, to degeneration.

Nevertheless, from the observation by Geerts of a megaspore mother cell of *Lamarckiana* containing 28 chromosomes, and from the discovery, by Miss Lutz[3] and Stomps,[4] of triploid mutants containing 21 chromosomes, it seems quite certain that eggs containing 14 chromosomes must occasionally be formed in *Lamarckiana*. Why such cells might not develop embryos occasionally, even if unfertilized, is not clear, and perhaps an extensive series of experiments with *Lamarckiana* and some of its 14-chromosome derivatives may yet show that this type of apogamy sometimes occurs.

In the light of these facts it appears desirable that the experiments of Mrs. Rose Haig-Thomas[5] on apogamy in *O. biennis* be repeated before the results are accepted as facts.

I may add that I have very recently observed a case of parthenocarpy in a race of *O. muricata* L. from eastern Canada grown in my cultures this season. This culture contained only four plants, all alike. Earlier in the season normal capsules were produced filled with seeds, but the later capsules (observed November 19) though full size and with normally developed walls, were hollow, containing undeveloped ovules instead of seeds. It seems possible that the drop in temperature at the end of the season may have been sufficient to kill the young embryos shortly after the eggs were fertilized, while the capsule walls, already stimulated by the process of fertilization, continued their development. However, nothing of the kind was observed in any other race.

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[2] Gates, R. R., "Tetraploid Mutants and Chromosome Mechanisms," *Biol. Centlbl.*, 33: 92–99, 113–150, Figs. 7, 1913.

[3] Lutz, Anne M., "Triploid Mutants in *Œnothera*," *Biol. Centlbl.*, 32: 385–435, Figs. 7, 1912.

[4] Stomps, Theo. J., "Mutation bei *Œnothera biennis* L.," *Biol. Centlbl.*, 32: 521–535, Pl. 1, Fig. 1, 1912.

[5] Haig-Thomas, Mrs. Rose, "Note sur la parthénogénèse chez les plantes," *Comptes Rendus*, IV^e^ Conf. Intern. de Génétique, Paris, 1913, p. 209.

SOCIETIES AND ACADEMIES

The American Philosophical Society

On November 7, before the American Philosophical Society, a paper was read by Professor J. M. Macfarlane on "The Phylogeny of Plants in Relation to their Environment." Recalling the conclusions already published in the centennial volume of the Academy of Natural Sciences, the speaker showed that, of the simplest non-nucleate plants the great majority seem to have had a thermal-water or fresh-water origin. Of the simpler nucleate plants, such as the Desmids, the Protococcoid, Pleurococcoid, Chætophoroid, Cladophoroid and related groups, all or the preponderating number were fresh-water. Even the simplest brown algæ like *Lithoderma*, *Pleurocladia* and *Heribaudiella* were now in part or wholly fresh-water, as were the simplest groups of the red algæ. An estimation of the genera and species of algæ and fungi now living revealed that 3,008 genera and about 28,660 species were fresh-water or land forms, 658 genera and 5,930 species were marine. Interesting data were advanced as to transition or brackish species. The phylogenetic origin of bryophytic, pteridophytic and higher classes from certain fresh-water algæ was advocated, while the extreme rarity of any genus of these classes in marine surroundings was emphasized. The speaker, therefore, concluded that marine life was probably derived from a thermal-water and later from a fresh-water source. Though contrary to the whole trend of zoological consideration, he indicated that in an abstract already published he had advocated a like origin in fresh water for animal as for plant life, and a derived distribution of many groups of animals into the sea.